

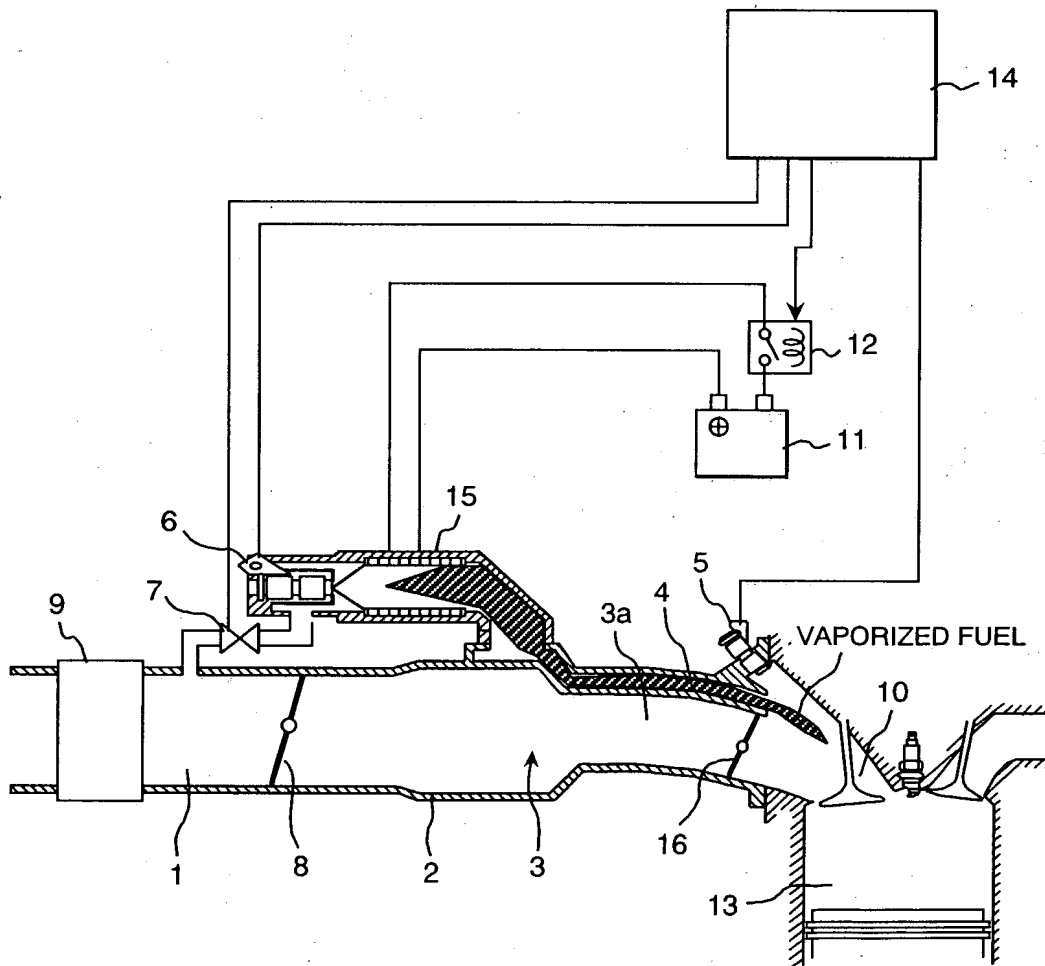
FIG. 1

FIG. 2h

STARTER ————— ENERGIZATION —————
COMPLETE EXPLOSION

FIG. 2a

ENGINE
REVOLUTION

CRANKING

FIG. 2b

MAIN AIR
CONTROL VALVE

CLOSE

FIG. 2c

INFLOW AIR FROM
MAIN PASSAGE

FIG. 2d

INFLOW AIR FROM
BYPASS PASSAGE

FIG. 2e

HEATER

ENERGIZATION

FIG. 2f

INJECTION QUANTITY
OF AUXILIARY
INJECTION VALVE

FIG. 2g

INFLOW FUEL
QUANTITY INTO
CYLINDER

IGNITION

COMBUSTIBILITY LIMIT

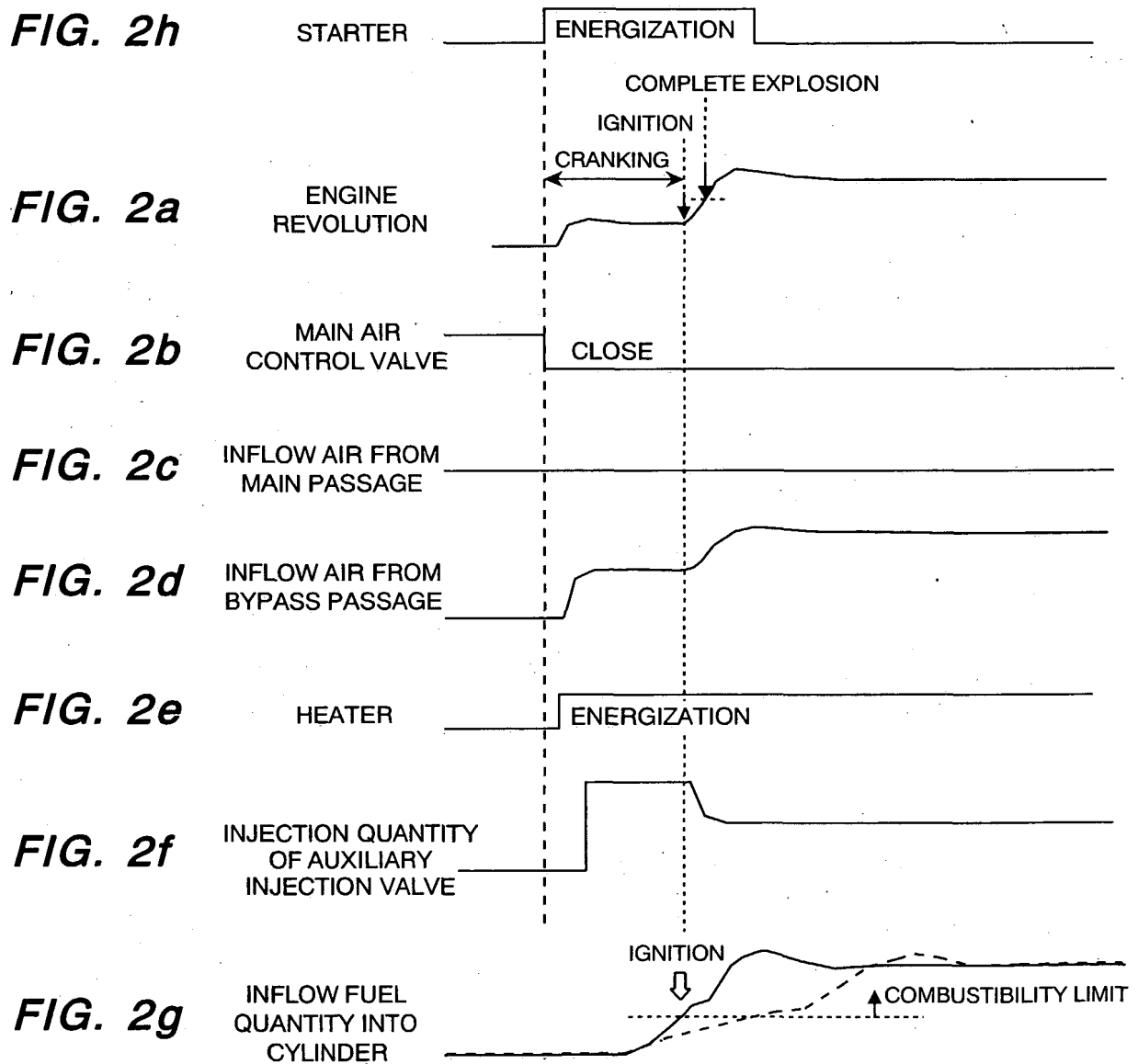


FIG. 3j

STARTER

ENERGIZATION

COMPLETE EXPLOSION

IGNITION

CRANKING

FIG. 3aENGINE
REVOLUTION**FIG. 3b**THROTTLE
VALVE

CLOSE

FIG. 3cINFLOW AIR FROM
MAIN PASSAGE**FIG. 3d**INFLOW AIR FROM
BYPASS PASSAGE**FIG. 3e**INFLOW FUEL FROM
BYPASS PASSAGE**FIG. 3f**

HEATER

ENERGIZATION

FIG. 3gINJECTION QUANTITY
OF AUXILIARY
INJECTION VALVE**FIG. 3h1**INJECTION QUANTITY OF
PORT INJECTION VALVE

0.4s

 F_{max} **FIG. 3i**INFLOW FUEL
QUANTITY INTO CYLINDER

IGNITION

COMBUSTIBILITY
LIMIT

0.4s

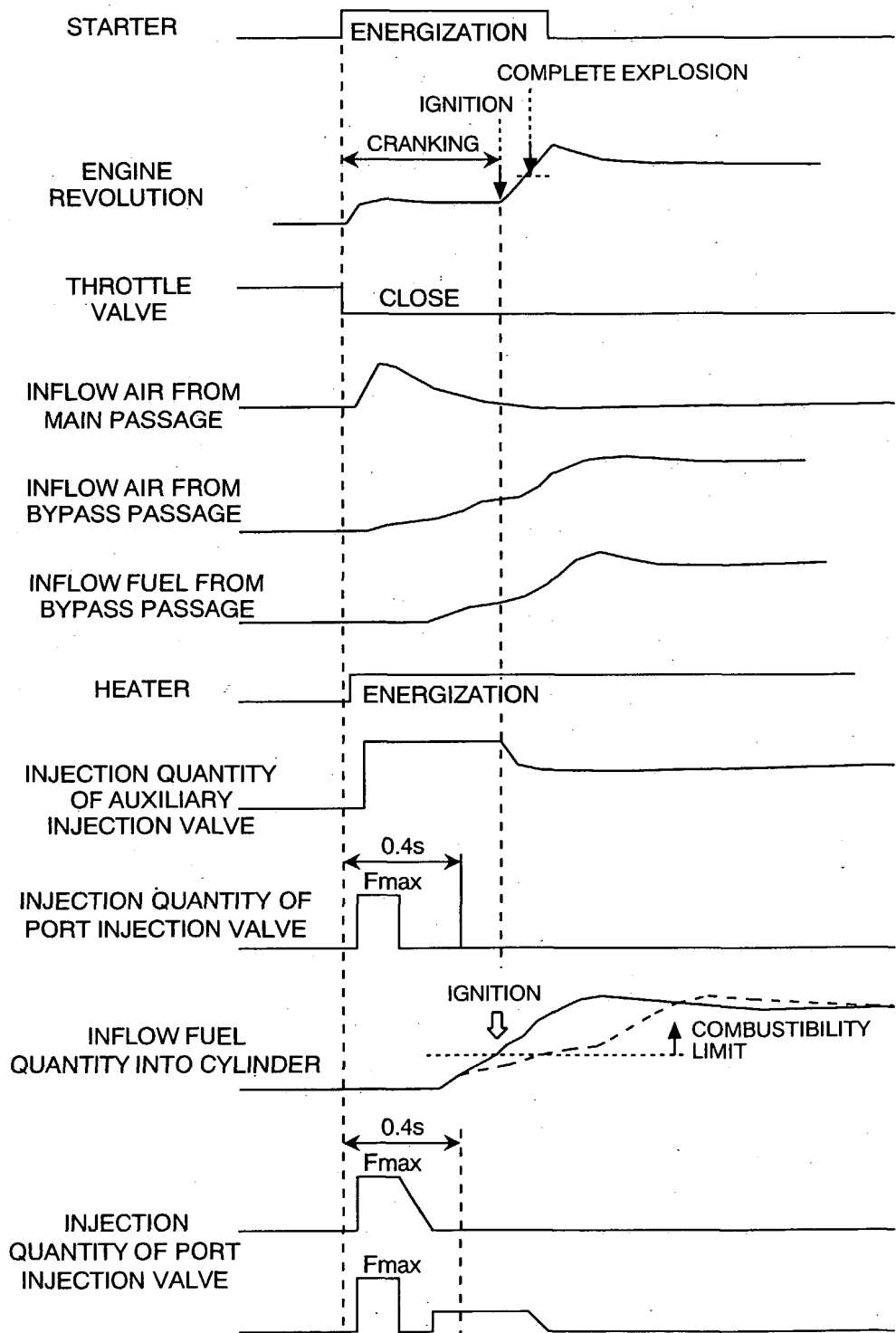
 F_{max} **FIG. 3h2**INJECTION
QUANTITY OF PORT
INJECTION VALVE F_{max} **FIG. 3h3**INJECTION
QUANTITY OF PORT
INJECTION VALVE F_{max} 

FIG. 4f**FIG. 4g**

ENGINE
REVOLUTION

REVOLUTION
SIGNAL

FIG. 4a

AUXILIARY
INJECTION VALVE

FIG. 4b

PORT INJECTION
VALVE

1-CYLINDER

3-CYLINDER

4-CYLINDER

2-CYLINDER

180°

INTAKE

INTAKE

INTAKE

INTAKE

INTAKE

INTAKE

INJECTION

FIG. 4c

PORT INJECTION
QUANTITY

F_{max}

FIG. 4d

RATIO OF PORT
INJECTION QUANTITY/
AIR QUANTITY

η_{max}

FIG. 4e

INJECTION QUANTITY
RATIO OF PORT
INJECTION VALVE/
AUXILIARY INJECTION VALVE

R_{max}

FIG. 5

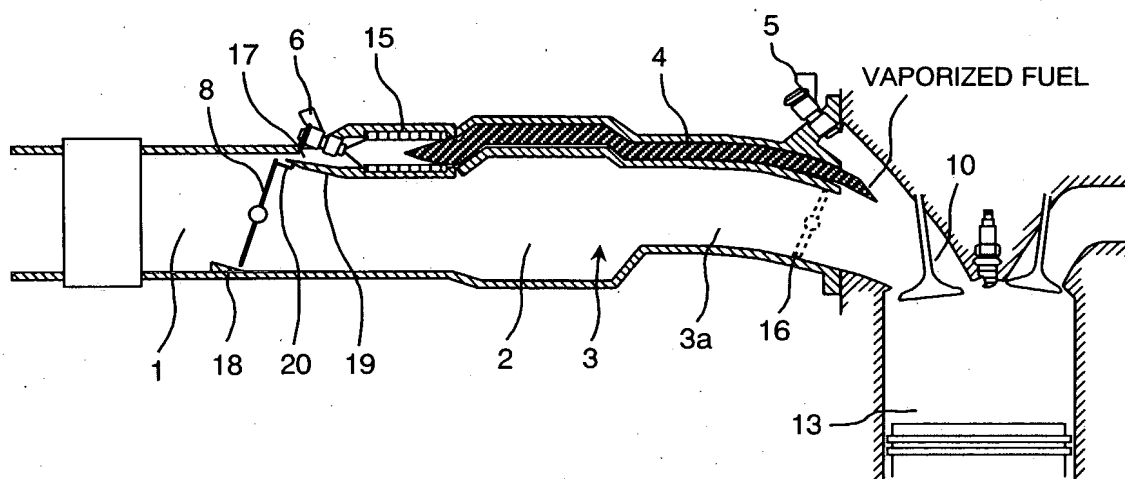


FIG. 6

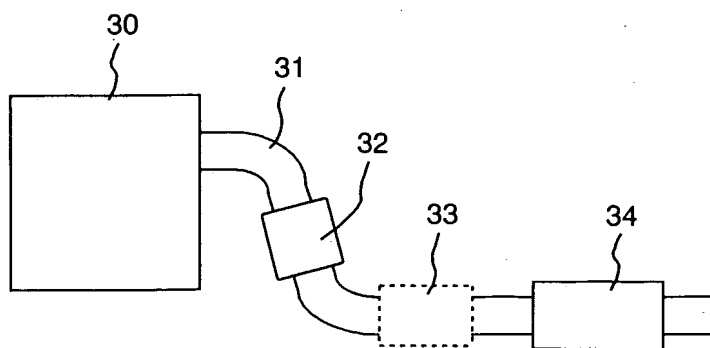
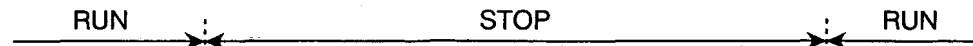


FIG. 7i**FIG. 7j**

CAR SPEED

AUTOMATIC
ENGINE STOPAUTOMATIC
ENGINE START**FIG. 7a**ENGINE
REVOLUTION

IDLING

ENGINE STOP

IDLING

FIG. 7b

HEATER

ENERGIZATION

DE-ENERGIZATION

(I)

(II)

(III)

(IV)

FIG. 7cHEATER
TEMPERATURE**FIG. 7d**

THROTTLE VALVE

CLOSE

FIG. 7eBYPASS AIR
CONTROL VALVE

CLOSE

OPEN

FIG. 7fAUXILIARY
INJECTION VALVEINJECTION VALVE
CHANGEOVER**FIG. 7g**PORT
INJECTION VALVE**FIG. 7h**MAIN AIR
CONTROL VALVE

OPEN

CLOSE

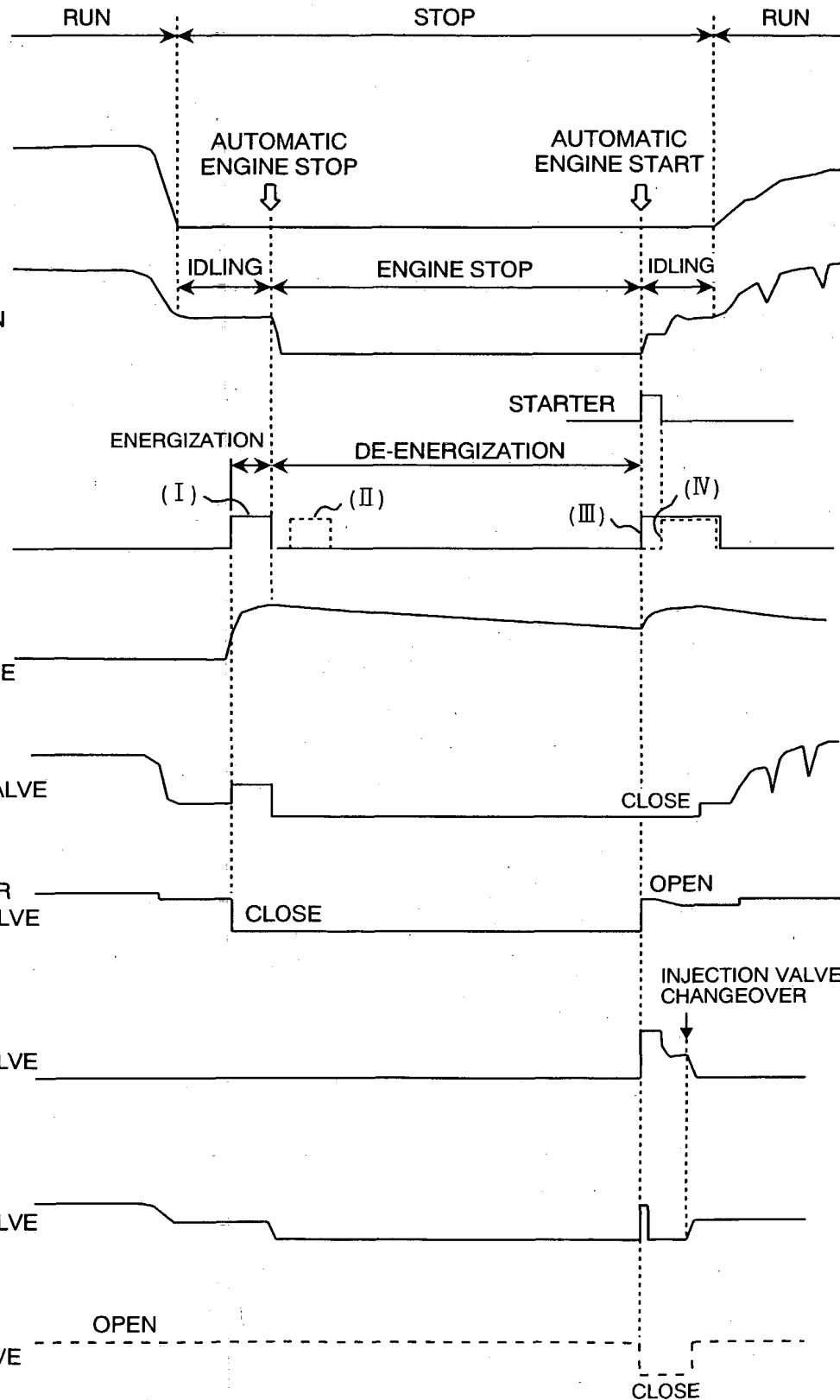


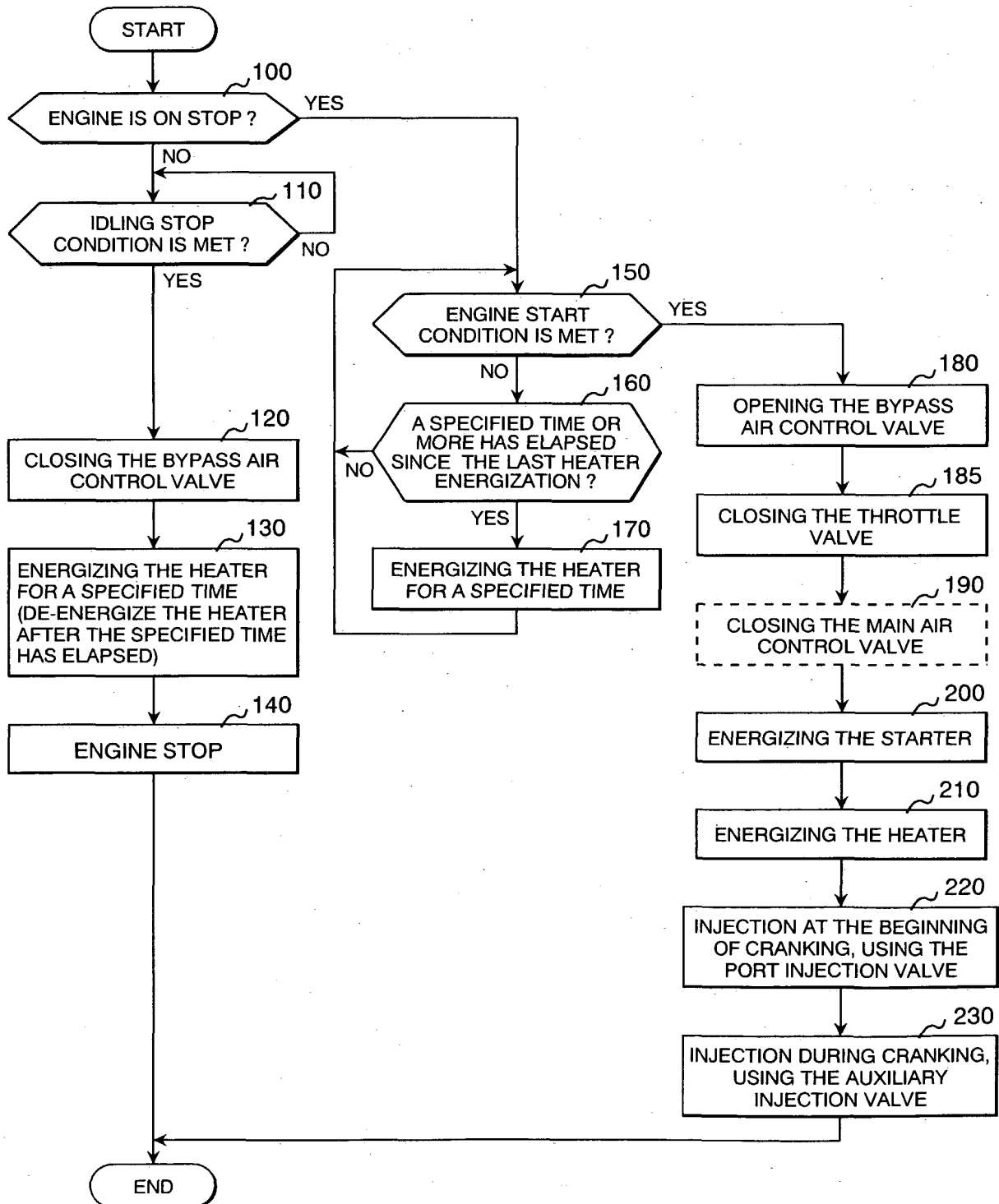
FIG. 8

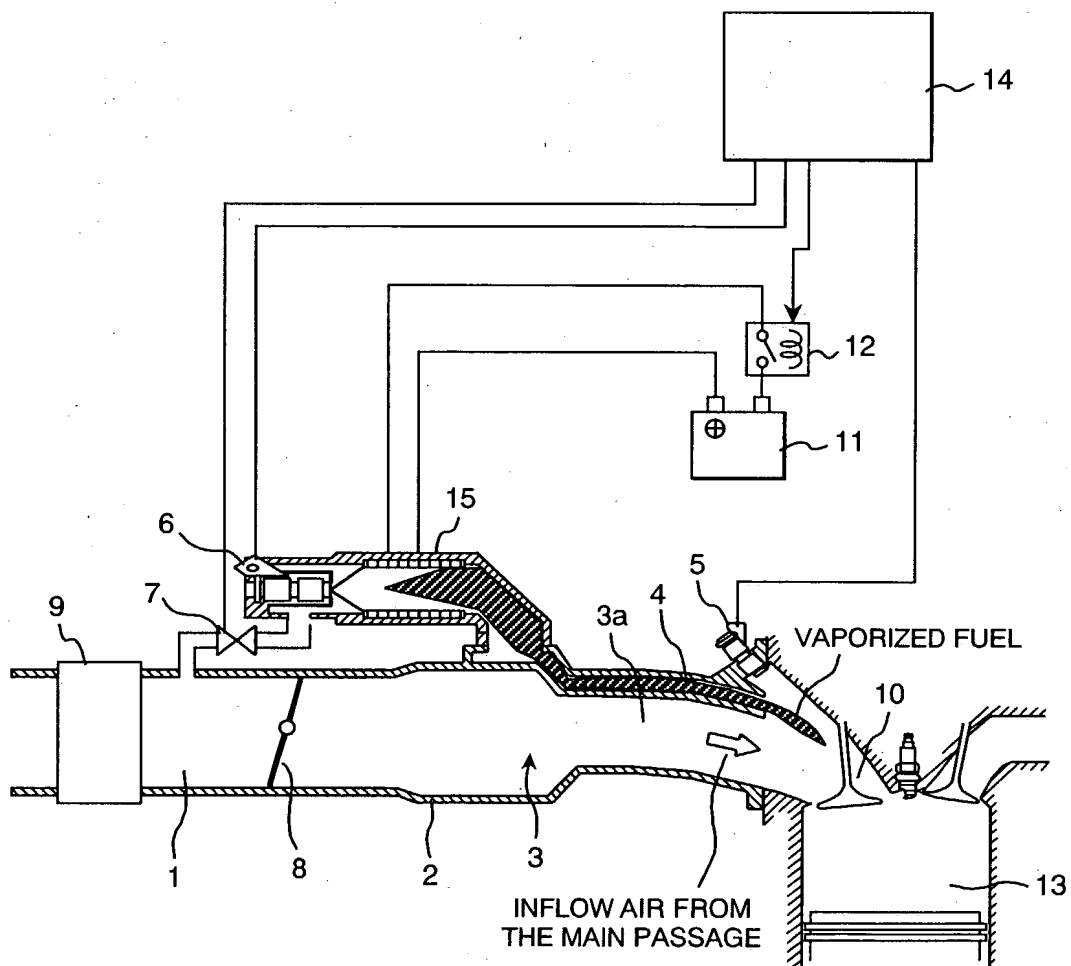
FIG. 9

FIG. 10h

STARTER

FIG. 10aREVOLUTION
SPEED**FIG. 10b**ENGINE SUCTION
AIR QUANTITY**FIG. 10c**INCOMING AIR
FROM MAIN PASSAGE**FIG. 10d**INFLOW AIR FROM
BYPASS PASSAGE**FIG. 10e**

HEATER

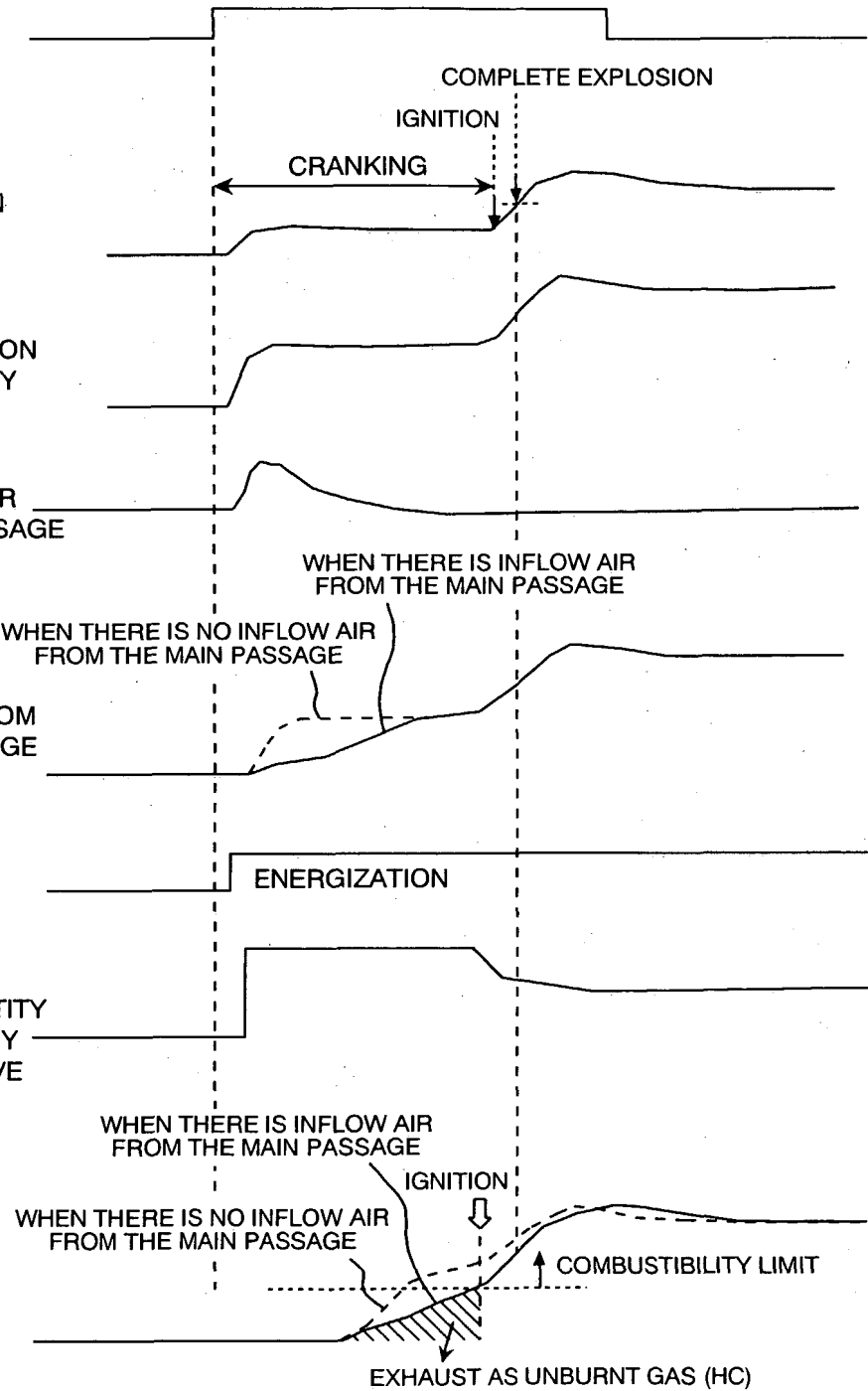
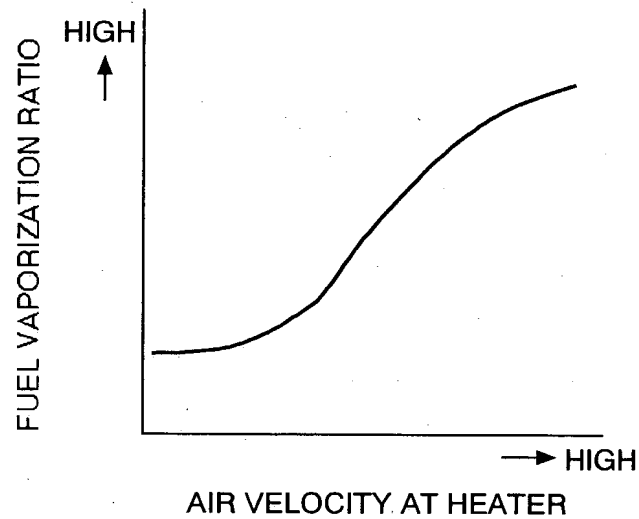
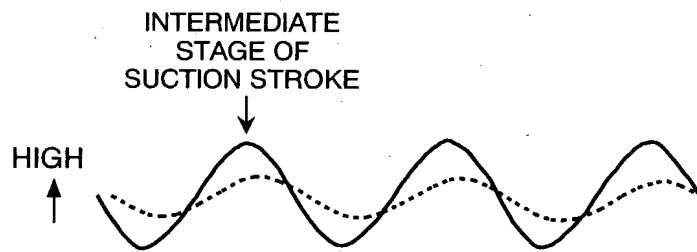
FIG. 10fINJECTION QUANTITY
FROM AUXILIARY
INJECTION VALVE**FIG. 10g**INFLOW FUEL
QUANTITY INTO
CYLINDER

FIG. 11**FIG. 12a**

AIR VELOCITY
AT HEATER
SURFACE

**FIG. 12b**

FUEL
VAPORIZATION
RATIO



- WHEN THERE IS INFLOW AIR
FROM THE MAIN PASSAGE
- WHEN THERE IS NO INFLOW AIR
FROM THE MAIN PASSAGE